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Substrates and Method of
Making the Same

First Named Inventor: Reza-Ur Khan

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| Title of Invention | Ball Grid Array Package Substrates and Method of Making the Same |
| Application Number: | 10/020207 |
| Date: | 2001-12-18 |
| First Named Applicant: | Reza-Ur Khan |
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| Jeffrey S. Weaver | /jsw/ | Attorney |

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| <p>Application Number: 10/020207 Confirmation Number: 7969 First Named Applicant: Reza-Ur Khan Attorney Docket Number: 1875.1640000 Search string: (5045921 or 5291062 or 5397917 or 5490324 or 5572405 or 5583377 or 5583378 or 3790866 or 5578869 or 5642261 or 5648679 or 5691567 or 5736785 or 5798909 or 5835355 or 5844168 or 5883430 or 5889324 or 5894410 or 5901041 or 5903052 or 5905633 or 5953589 or 5972734 or 5977626 or 5986885 or 5998241 or 6002169 or 6011304 or 6028358 or 6077724 or 6084777 or 6114761 or 6117797 or 6122171 or 6133064 or 6140707 or 6160705 or 6162659 or 6163458 or 6166434 or 6184580 or 6212070 or 6380623 or 6347037 or 6362525 or 5801432 or 5438216 or 6069407 or 20010045644 or 20020109226).pn.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <h3>US Patent Documents</h3> <p>Note: Applicant is not required to submit a paper copy of cited US Patent Documents</p> <table border="1"><thead><tr><th>init</th><th>Cite.No.</th><th>Patent No.</th><th>Date</th><th>Patentee</th><th>Kind</th><th>Class</th><th>Subclass</th></tr></thead><tbody><tr><td></td><td>1</td><td>5045921</td><td>1991-09-03</td><td>Lin et al.</td><td></td><td></td><td></td></tr><tr><td></td><td>2</td><td>5291062</td><td>1994-03-01</td><td>Higgins, III</td><td></td><td></td><td></td></tr><tr><td></td><td>3</td><td>5397917</td><td>1995-03-14</td><td>Ommen et al.</td><td></td><td></td><td></td></tr><tr><td></td><td>4</td><td>5490324</td><td>1996-02-13</td><td>Newman</td><td></td><td></td><td></td></tr><tr><td></td><td>5</td><td>5572405</td><td>1996-11-05</td><td>Wilson et al.</td><td></td><td></td><td></td></tr><tr><td></td><td>6</td><td>5583377</td><td>1996-12-10</td><td>Higgins, III</td><td></td><td></td><td></td></tr><tr><td></td><td>7</td><td>5583378</td><td>1996-12-10</td><td>Marrs et al.</td><td></td><td></td><td></td></tr><tr><td></td><td>8</td><td>3790866</td><td>1974-02-05</td><td>Meyer et al.</td><td></td><td></td><td></td></tr><tr><td></td><td>9</td><td>5578869</td><td>1996-11-26</td><td>Hoffman et al.</td><td></td><td></td><td></td></tr><tr><td></td><td>10</td><td>5642261</td><td>1997-06-24</td><td>Bond et al.</td><td></td><td></td><td></td></tr></tbody></table> | | | | | init | Cite.No. | Patent No. | Date | Patentee | Kind | Class | Subclass | | 1 | 5045921 | 1991-09-03 | Lin et al. | | | | | 2 | 5291062 | 1994-03-01 | Higgins, III | | | | | 3 | 5397917 | 1995-03-14 | Ommen et al. | | | | | 4 | 5490324 | 1996-02-13 | Newman | | | | | 5 | 5572405 | 1996-11-05 | Wilson et al. | | | | | 6 | 5583377 | 1996-12-10 | Higgins, III | | | | | 7 | 5583378 | 1996-12-10 | Marrs et al. | | | | | 8 | 3790866 | 1974-02-05 | Meyer et al. | | | | | 9 | 5578869 | 1996-11-26 | Hoffman et al. | | | | | 10 | 5642261 | 1997-06-24 | Bond et al. | | | |
| init | Cite.No. | Patent No. | Date | Patentee | Kind | Class | Subclass | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 5045921 | 1991-09-03 | Lin et al. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | 5291062 | 1994-03-01 | Higgins, III | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 5397917 | 1995-03-14 | Ommen et al. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4 | 5490324 | 1996-02-13 | Newman | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5 | 5572405 | 1996-11-05 | Wilson et al. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6 | 5583377 | 1996-12-10 | Higgins, III | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 7 | 5583378 | 1996-12-10 | Marrs et al. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 8 | 3790866 | 1974-02-05 | Meyer et al. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 9 | 5578869 | 1996-11-26 | Hoffman et al. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 10 | 5642261 | 1997-06-24 | Bond et al. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | |
|--|----|---------|------------|------------------|----|
| | 11 | 5648679 | 1997-07-15 | Chillara et al. | |
| | 12 | 5691567 | 1997-11-25 | Lo et al. | |
| | 13 | 5736785 | 1998-04-07 | Chiang et al. | |
| | 14 | 5798909 | 1998-08-25 | Bhatt et al. | |
| | 15 | 5835355 | 1998-11-10 | Dordi | |
| | 16 | 5844168 | 1998-12-01 | Schueller et al. | |
| | 17 | 5883430 | 1999-03-16 | Johnson | |
| | 18 | 5889324 | 1999-03-30 | Suzuki | |
| | 19 | 5894410 | 1999-04-13 | Barrow | |
| | 20 | 5901041 | 1999-05-04 | Davies et al. | |
| | 21 | 5903052 | 1999-05-11 | Chen et al. | |
| | 22 | 5905633 | 1999-05-18 | Shim et al. | |
| | 23 | 5953589 | 1999-09-14 | Shim et al. | |
| | 24 | 5972734 | 1999-10-26 | Carichner et al. | |
| | 25 | 5977626 | 1999-11-02 | Wang et al. | |
| | 26 | 5986885 | 1999-11-16 | Wyland | |
| | 27 | 5998241 | 1999-12-07 | Niwa | |
| | 28 | 6002169 | 1999-12-14 | Chia et al. | |
| | 29 | 6011304 | 2000-01-04 | Mertol | |
| | 30 | 6028358 | 2000-02-22 | Suzuki | |
| | 31 | 6077724 | 2000-06-20 | Chen | |
| | 32 | 6084777 | 2000-07-04 | Kalidas et al. | |
| | 33 | 6114761 | 2000-09-05 | Mertol et al. | |
| | 34 | 6117797 | 2000-09-12 | Hembree | |
| | 35 | 6122171 | 2000-09-19 | Akram et al. | |
| | 36 | 6133064 | 2000-10-17 | Nagarajan et al. | |
| | 37 | 6140707 | 2000-10-31 | Plepys et al. | |
| | 38 | 6160705 | 2000-12-12 | Stearns et al. | |
| | 39 | 6162659 | 2000-12-19 | Wu | |
| | 40 | 6163458 | 2000-12-19 | Li | |
| | 41 | 6166434 | 2000-12-26 | Desai et al. | |
| | 42 | 6184580 | 2001-02-06 | Lin | B1 |
| | 43 | 6212070 | 2001-04-03 | Atwood et al. | B1 |
| | 44 | 6380623 | 2002-04-30 | Demore | B1 |
| | 45 | 6347037 | 2002-02-12 | Iijima et al. | B2 |
| | 46 | 6362525 | 2002-03-26 | Rahim | B1 |

| | | | | |
|--|----|---------|------------|-----------------|
| | 47 | 5801432 | 1998-09-01 | Rostoker et al. |
| | 48 | 5438216 | 1995-08-01 | Juskey et al. |
| | 49 | 6069407 | 2000-05-30 | Hamzehdoost |

US Published Applications

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| init | Cite.No. | Pub. No. | Date | Applicant | Kind | Class | Subclass |
|------|----------|-------------|------------|-------------|------|-------|----------|
| | 1 | 20010045644 | 2001-11-29 | Huang | A1 | | |
| | 2 | 20020109226 | 2002-08-15 | Khan et al. | A1 | | |

Signature

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| Examiner Name | Date |
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